UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,604	02/27/2004	Ralph M. Ellison	2302H	9050

27573 7590 06/23/2006

CEPHALON, INC.
41 MOORES ROAD
PO BOX 4011
FRAZER, PA 19355

EXAMINER	
PAK, JOHN D	
ART UNIT	**PAPER NUMBER**
1616	

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,604	ELLISON ET AL.	
	Examiner	Art Unit	
	JOHN PAK	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *14 and 15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 1-18 are pending in this application.

Applicant's election with traverse of the invention of Group III (claim 13, to the extent it reads on colon cancer, ovarian cancer, renal cancer, bladder cancer and prostate cancer) in the response filed on 3/30/2006 is acknowledged.

Applicant argues that a separate and divergent search would not be required because a generalized search of the subject matter of any one of the invention groups would necessarily lead to disclosures encompassed by the other invention groups. Applicant further states that similar classification of the inventions shows that search and examination of the entire application would not impose a serious burden on the Examiner. The Examiner cannot agree.

First, it is noted that applicant has claimed the following in four separately filed patent applications:

Application No.	**Claimed subject matter**
10/640,399	Treatment of multiple myeloma with arsenic
10/649,944	Treatment of lymphoma with arsenic
10/649,776	Treatment of melanoma with arsenic
10/640,403	Treatment of myeloid dysplastic syndrome with arsenic

Clearly there is recognition even by the same inventors that separate inventive efforts are manifest for treatment of divergent cancer types with arsenic.

Second, the U.S. Patent Classification system is not always indicative of the divergent searches and complex technology-specific considerations that would be required. This is particularly the case in complex technologies where the classification system has not kept up with the developments in the art. For example, applicant argued during the prosecution of 10/649,776 that even a prior art reference that explicitly discloses "body surface tumors" and "skin cancer" is distinguishable over a claim directed to melanoma because there are many different types of skin cancers, such as basal cell carcinoma, squamous cell carcinoma, cutaneous T-cell lymphomas, Kaposi's sarcoma (reply filed on 3/7/2006). Applicant argued that different approaches are taken towards treating different types of skin cancer and the prior art disclosure of "body surface tumors" and "skin cancer" fails to provide reasonable expectation of success for treating melanoma. The same inventors clearly recognized a separate inventive effort even among different types of skin cancers. It is noted that the types of cancers covered in this application are far more divergent than mere skin cancer types.

Applicant also argues that the search and examination of the five invention groups would not impose a serious burden on the Examiner. The Examiner cannot agree. As shown above, the examination of this application may turn on the preciseness of prior art teachings and technology-specific issues, and the burden

represented by having to separately search AND separately consider the various different types of cancers to be treated vis-a-vis the prior art would place an undue burden on the Examiner. Undue burden is a relative and balanced concept since if the Examiner were given several weeks of time to search and examine this application, the burden would decrease. Applicant should keep in mind that this Examiner is given less than 14 hours to complete this case, from start to finish (allowance, abandonment or Examiner's Answer). Undue burden is also in plain view just from applicant's several information disclosure statements filed with virtually all other related arsenic cases by applicant (but not filed herein for some reason): 8 pages worth of prior art listing were submitted in all those other related arsenic/cancer treatment cases. With so much relevant prior art and so many different types of cancers to consider, the specifics of this application support the Examiner's previous determination of undue burden.

Applicant's traversal of the outstanding restriction requirement is therefore found unpersuasive and the restriction requirement of record is thereby made FINAL.

Accordingly, claims 14-15 are withdrawn from further consideration by the Examiner as being directed to a non-elected invention. Subject matter in claims 1-12 and 16-18 which are not directed to treating colon cancer, ovarian cancer, renal cancer, bladder cancer and prostate cancer are also withdrawn from further consideration by the Examiner as being directed to non-elected inventions.

Claims 1-13 and 16-18 will presently be examined *to the extent* that they read on treating colon cancer, ovarian cancer, renal cancer, bladder cancer and prostate cancer.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over CN 1079391 in view of Zhang (US 6,720,011), Shimotsuura et al. and Smith.

CN 1079391 discloses the use of highly pure trivalent arsenic oxide in combination with traditional Chinese medicine to treat cancer (English translation of claim 1 & translation page 7, first full paragraph). Treatment of body cavity tumors with arsenic trioxide is taught (translation page 7, first full paragraph). Treatment of skin cancer with white arsenic paste or arsenic trioxide is already known (Translation page 6, lines 13-20). Paste and injection formulation of arsenic trioxide for body surface tumors are taught (paragraph bridging pages 7-8 of the translation; see also translation page 12, last paragraph).

Zhang discloses treating various cancers with arsenic trioxide. See column 1, lines 4-6, 33-35 and 41-43. Cancer of the liver is disclosed (column 1, line 35). Intravenous composition containing 1-10 g arsenic trioxide, sodium chloride and water (column 1, lines 41-54). "[S]trong abruptive effect on the membranes of cancer cells" is disclosed, as well as inhibition of DNA/RNA synthesis (column 1, lines 58-61). Effective daily dose for an adult is disclosed as 10 ml of the composition containing 10 g/l arsenic trioxide added to 500 ml of 10% glucose solution is disclosed. This calculates to about 67 mg/day. Appropriate dose is to be "decreased accordingly for children" (column 2, lines 9-16).

Shimotsuura et al. disclose that antineoplasmic actions of arsenic trioxide are primarily achieved by DNA composition blockage (page 25 of the English translation, top of page 49 in the original).

Smith discloses that radiation to soft tissue lining body cavities is known to be useful in the treatment of cancers such as cancer of the bladder, colon, urethra (column 1, lines 18-21).

CN 1079391 does not **explicitly** disclose treating cancer (i.e. elected subject matter cancers) in a human by administering a combination of arsenic compound and radiation, either alone or in combination with a additional chemotherapeutic or radiotherapeutic agents. However, for the reasons to follow, the claimed invention as a

whole would nonetheless have been obvious to the ordinary skilled artisan in this field at the time the invention was made.

CN 1079391 teaches efficacy of arsenic against body cavity tumors. Although elected cancer types are not expressly disclosed in verbatim language, it would have been obvious from the disclosure of CN 1079391 that cancers such as bladder cancer (a body cavity cancer) and related cancer such as cervical cancer (another body cavity cancer) are clearly suggested from said disclosure. Body cavities are lined with epithelial cells and said cells make up the cells in ovarian, bladder and prostate cancers. Further, Zhang broadly teaches efficacy of arsenic trioxide against cancers, including liver cancer, and a strong abruptive effect on the membranes of cancer cells and inhibition of DNA/RNA synthesis. Taken with teachings of Shimotsuura et al., which confirm the DNA composition blockage action of arsenic trioxide antineoplastic, the ordinary skilled artisan in this field would have been motivated to administer arsenic trioxide to treat patients with the cancers included in the elected subject matter, as claimed. Because those cancers involve uncontrolled growth of cells, one having ordinary skill in the art would have been motivated to administer arsenic trioxide to treat such uncontrolled growth of cells, particularly in view of its adverse effect on rapid DNA replication. The ordinary skilled artisan would have been motivated to further utilize another anti-cancer treatment such as radiation to obtain additional treatment. Smith

provides this motivation because Smith establishes that cancers of the type claimed by applicant are already known to be treated with radiation.

Applicant's dependent claim feature of ionic aqueous solution is noted. Ionic aqueous solution is suggested by the various ions in CN 1079391 (translation of claim 5) and the sodium chloride present in Zhang's arsenic trioxide solution (column 1, lines 44-45).

Varying the dose according to the body weight of a human (applicant's claim 11) is suggested by Zhang's teaching of appropriately decreasing the dose for children.

IV administration is suggested by the injection formulation of CN 1079391 and explicit IV injection teaching of Zhang.

As for combined use with radiation or other chemotherapeutic agents, such method would have been fairly suggested from the conventional practice in the cancer treatment field to combine the actions and benefits of several therapies to attack the cancer cells from a variety of mechanisms. The therapeutic agents listed in claim 10 are all well-known anti-cancer agents and inclusion of such additional anti-cancer agents in combination with arsenic trioxide would have been fairly suggested.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly suggested by the teachings of the cited references.

For these reasons, all claims must be rejected.

A facsimile center has been established in Technology Center 1600. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier number for accessing the facsimile machines is (571)273-8300.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner John Pak whose telephone number is **(571)272-0620.** The Examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Mr. Gary Kunz, can be reached on **(571)272-0887**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number **is (571) 272-1600**. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have a question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John Pak
Primary Examiner
Technology Center 1600